

dentata is simply *Thomsoni* with the callus-folds situated at the anterior area of the back of the shell more strongly developed.

In a series of co-types from the collection of the late Mr. C. E. Beddome there are some specimens *entirely without these folds*, and a selected series seems to demonstrate that these folds are only fully developed in the last stage of growth.

It is significant that in the description of *P. bidentata* there was no comparison made with the obviously closely allied *P. Thomsoni*.

XVIII.—*Description of a new Cyprinoid Fish, Acheilognathus signifer, from Korea, with a Synopsis of all the known Rhodinae.* By L. S. BERG (St. Petersburg).

Acheilognathus signifer.

Closely allied to *A. cyanostigma*, Jordan & Fowler, 1903, from Japan (Lake Biwa), differing chiefly in coloration and longer barbels.

No dark shoulder-spot above gill-opening, no longitudinal band on body, neither on tail. *Dorsal deep brown, with a broad marginal whitish band. Anal with several darker longitudinal cross-bars. Ventral blackish.*

D. II 8. A. II 8. L. I. 36 $\frac{6}{4}$.

Teeth 5—5, not serrated. No spines in dorsal and anal. Barbels present, rather long, somewhat more than half the length of the eye, reaching to the vertical from the anterior third of eye. Mouth small, subinferior. Maxillary reaching to the nostrils. Depth of body $2\frac{3}{4}$ in its length (without caudal), length of head 4; diameter of eye $\frac{1}{3}$ length of head, slightly less than interorbital space, equal to snout, $1\frac{1}{2}$ in postorbital space. Caudal peduncle $3\frac{1}{2}$ in body, twice as long as deep, its depth $2\frac{5}{8}$ in that of body. Origin of dorsal somewhat behind the root of ventrals, midway between end of snout and root of caudal; its end opposite to the third branched ray of anal. Base of dorsal $5\frac{1}{4}$ in body, height 6. Upper margin of dorsal straight. Origin of anal below the posterior dorsal rays; its base $6\frac{7}{10}$ in body, its height $6\frac{1}{4}$. Pectorals not reaching ventrals, $5\frac{1}{2}$ in body; ventrals 6, reaching origin of anal. Lateral line slightly decurved; 6 scales between

lateral line and middle of belly. Anus midway between origin of the ventrals and anal.

A single adult male (with two semicircular excrescences on snout), measuring about 57 mm. (47 without caudal), taken by the late O. Herz in Pungtung, Korea, in 1888. Type specimen N. 10265 in the Zool. Mus. of the Acad. of Sciences at St. Petersburg.

The following is a synopsis of all the species known to me of the group *Rhodeine**:—

I. *RHODEUS*, Agassiz, 1835.

Lateral line incomplete. No spine in dorsal and anal. Pharyngeal teeth 5—5, not serrated. More than 7 branched rays in anal.

a. No barbels; D. III 9—10, A. III 8—10,
l. l. 34—40.

b. Third suborbital not more than half the length of the eye. (Central Europe, N.W. and S. Russia, Macedonia, Anatolia, Caucasus, basin of Amur, Manchuria †.)

Rh. sericeus (Pallas), 1776 (= *Rh. amarus*, Bloch, 1782).

bb. Third suborbital more than half the length of the eye. (Southern China.) *Rh. sinensis*, Günther, 1868.

aa. Barbels present; D. III 8, A. III 9,
l. l. 32, teeth 5—5 (not serrated?).

(Japan, Kiu-siu.) *Rh. (?) oryzae*, Jordan & Seale, 1906 ‡.

II. *PARARHODEUS*, gen. nov.

Lateral line incomplete. No spine in dorsal and anal. Pharyngeal teeth 5—4, slightly serrated. D. II 7, A. III 6, l. l. 48—49.—A single species: *P. syriacus* (Lortet), 1883. (Syria, Damascus.)

III. *ACHEILOGNATHUS*, Bleeker, 1860.

Lateral line complete. Pharyngeal teeth 5—5, not serrated. Barbels present or absent. Spine in dorsal and anal absent or present.

A. Barbels present. No spine in dorsal and anal.

a. Shoulder with a more or less distinct

* Messrs. Jordan and Fowler (Proc. U.S. N. Mus. xxvi. 1903, pp. 812, 822) refer *Capoeta elongata*, Schl., and *C. gracilis*, Schl., to the group *Rhodeine* ("teeth one-rowed"). Although Schlegel does not indicate the dentition of these species, Bleeker (Atlas ichth. iii. 1863, p. 117; Ned. Tijdsch. Dierk. ii. 1865, p. 158), who has had specimens from Japan, states that they are *three-rowed*, 1.3.5—5.3.1 ("dentes raptatorii") as in *Barbina*, which induced Dr. Günther (Cat. Fish. vii. 1868, p. 136) to refer the Bleekerian genus *Gnathopogon* to *Barbus*.

† A very remarkable instance of an interrupted distribution: not yet known from Siberia.

‡ Scarcely belonging to this genus.

- dark shoulder-spot above gill-opening.
- b. Barbels short, about half the length of the eye; shoulder-spot and lateral band very distinct. D. III 10, A. III 10. (Japan.) *A. limbatus* (Schlegel), 1846.
- bb. Barbels more than half the length of the eye; shoulder-spot and lateral band indistinct or absent. D. III 9, A. III 9. (Japan.) *A. lanceolatus* (Schlegel), 1846.
- aa. Shoulder without dark spot above gill-opening.
- c. Barbels short, not more than half the length of the eye.
- d. A longitudinal dark band; dorsal with several darker longitudinal cross-bars; anal dark, with a broad marginal whitish band. Maxillary barbel very short. D. III 8, A. III 8, l. l. 39. (Japan.) *A. cyanostigma*, Jordan & Fowler, 1903.
- dd. No longitudinal dark band; dorsal dark, with a broad marginal white band; anal with several darker longitudinal cross-bars. D. II 8, A. II 8, l. l. 36. Maxillary barbel about half the eye. (Korea.) *A. signifer*, Berg, 1906.
- cc. Barbels long, as long as eye. A longitudinal dark band along the middle of tail; lower half of dorsal with a series of blackish dots; D. II 9, A. II 11-12, l. l. 34. (Formosa.) *A. himantegus*, Günther, 1868.
- AA. Barbels present. Spine in dorsal and anal present.
- e. D. II 11, A. II 9, l. l. 36; depth $2\frac{1}{2}$ in length of body, snout shorter than eye. (Shanghai.) *A. barbatulus*, Günther, 1873.
- ee. D. III 11-13, A. III 11, l. l. 35-36; depth $2\frac{1}{2}$ - $2\frac{3}{4}$ in length of body; snout as long as eye; a dark blue spot above gill-opening. (Korea, Seoul.) *A. coreanus*, Steindachner, 1892.
- AAA. Barbels absent*.
- f. Dorsal and anal without spine. D. II 14-15, A. II 14-15, l. l. 35-38. (Japan, L. Biwa.) *A. longipinnis*, Regan, 1905.
- ff. Dorsal and anal with spines. D. III 12-13, A. III 10, l. l. 35-36. (Basin of Amur, L. Khanka or Hanka.) [Dyb.), 1872. *A. chankaensis* (Dybowski) (= *Devario chankaensis*,

* *Acheilognathus mesembrinum*, Jordan & Evermann (Proc. U.S. N. M. xxv. 1902, p. 323, fig. 6), from Formosa, apparently does not belong to the Rhodæine.

IV. PARACHEILOGNATHUS, Bleeker, 1863.

Lateral line complete. Pharyngeal teeth 5—5, deeply serrated. No spine in dorsal and anal.

- a. Barbels (very minute) present: mouth inferior; D. II 14, A. III 10, l. l. 37—38. Head $4\frac{1}{2}$ in length of body, depth $2\frac{1}{2}$, eye 4 in head. (Japan.) *P. rhombeus* (Schlegel), 1846.
- aa. No barbels; mouth oblique.
- b. D. II 10, A. II 12, l. l. 35. Head 4 in length of body, depth 3, eye 3 in head. (China.) [berbis, Gthr.).
P. imberbis (Günther), 1868 (= *Achilognathus im-*
- bb. D. III 13—14, A. III 10—11, l. l. 35. Head 4 in length of body, depth $2\frac{1}{2}$, eye $2\frac{2}{3}$ in head. (Yang-tse-kiang, Tien-tsin.) *P. Bleekeri*, n. n. (= *P. imberbis*, Bleeker, 1871, [non *Achilognathus imberbis*, Günther*]).

V. PSEUDOPERILAMPUS, Bleeker, 1863.

Lateral line incomplete. Pharyngeal teeth 5—5, deeply serrated. No spine in dorsal and anal. No barbels.

- a. D. III 10—11, A. III 10—11, l. l. 55—65. (Japan.) *P. typus*, Bleeker, 1863.
- aa. D. III 11—12, A. III 10—11, l. l. 33—34. (Shanghai, Yang-tse-kiang.) *P. ocellatus*, Kner, 1865—67.

VI. ACANTHORHODEUS, Bleeker, 1871.

Lateral line complete. Teeth deeply serrated. Spine in dorsal and anal present. Barbels present or absent.

- a. Barbels present.
- D. III 17—18, A. III 12—13, l. l. 35; head 5 in length of body, depth $2\frac{1}{2}$. (Yang-tse-kiang.) *A. macropterus*, Bleeker, 1871.
- D. III 17—18, A. III 13—14, l. l. 36—40; head $4\frac{1}{2}$ — $4\frac{3}{4}$ in length of body, depth 2 — $2\frac{1}{2}$. (Yang-tse-kiang; Shanghai.) *A. Guichenoti*, Bleeker, 1871.
- D. III 17, A. III 13—14, l. l. $34\frac{6}{5}$; head $4\frac{2}{3}$ in length of body, depth $2\frac{1}{2}$. (China; Swatow.) *A. dicæus*, Rutter, 1898.
- D. III 15, A. III 11, l. l. 36; head 4 in length of body, depth 2. (Upper Tonkin.) *A. tonkinensis*, Vaillant, 1892.
- aa. Barbels absent.
- D. III 14—15, A. III 12—13, l. l. 30. (Yang-tse-kiang.) *A. hypselonotus*, Bleeker, 1871.
- D. II 12—13, A. II 10—11, l. l. 35. (Shanghai.) *A. atranalis*, Günther, 1873.
- D. II 16—17, A. II 13—14, l. l. 35—36; second suborbital twice as long as deep; dorsal

* Cf. Günther, Zool. Record, 1871, p. 107.

- and anal twice as long as high. (Shang-hai.) *A. tænianalis*, Günther, 1873.
 D. III. 16-18, A. III 12-14, l. l. 36-39; second
 suborbital about as long as deep; dorsal
 and anal less than twice as long as high.
 (Lower Amur, Ussuri.) *A. Asmussi* (Dybowski), 1872
 [= *Derario Asmussi*, Dyb.).

XIX.—*Description of a new Cyprinoid Fish*, *Paraleucogobio notacanthus*, from N. China. By L. S. BERG (St. Petersburg).

PARALEUCOFOBIO, gen. nov.

Allied to *Leucogobio*, Günther, from which it differs in having the dorsal provided with a spine and inserted behind ventrals.

Body compressed, deep; scales large, about 35 in lateral line; lateral line in the middle of body, anteriorly slightly decurved, posteriorly straight. Dorsal short, with 7 branched rays and with a strong, but flexible at the top, spine, inserted a little behind origin of ventrals, nearer to end of snout than base of caudal. Anal short, with 6 branched rays, without spine, its origin beyond the end of dorsal, nearer to base of ventrals than to caudal. Anus a little before origin of anal. Breast scaled. Belly not keeled. Mouth small, anterior: jaws of equal length; lower without tubercle, its edge somewhat trenchant, semilunar. Hind margin of maxillary reaching the vertical of the middle between nostrils. Tip of snout about on the level of the lower margin of eye. Lips thin, the lower interrupted at the symphysis. A minute barbel at the angle of mouth, equal to $\frac{1}{3}$ of the diameter of eye, not reaching the vertical of front margin of eye. Preorbital reaching the eye. Suborbitals long, narrow. Gill-membranes attached to isthmus below the hind margin of eye. Peritoneum silvery, with some black points. Pharyngeal teeth two-rowed, 2.4—5.3, compressed, subuncinate; upper teeth of the longer series conical.

Paraleucogobio notacanthus, sp. n.

D. II 7. A. III 6. Lin. lat. $34 \frac{5}{3}$ 37.

Snout blunt; interorbital space convex. Back behind nape flattened. Pectorals not reaching ventrals, ventrals not